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ABSTRACT

The strategic learning of college and university students begins with their acquisition of knowledge about their academic context and its learning opportunities and demands. However, traditional assessment measures isolate the student outside of the authentic learning context, which limits the information available from these tests. In contrast, this study explores and describes the insights that university students can contribute to an assessment of their study problems and strategies within the authentic context of the Assessment Interview Process. Utilizing a problem-solving perspective to analyze the students' retrospective verbal reports, this ethnographic study organizes the students' insights regarding the development of strategies to solve study problems into the Strategic Learning Model. Twenty sessions between nine students and five interviewers/tutors were reported. The dimensions of this heuristic, described in this study, provide the structure needed to better understand the processes used by students as they encounter study and learning difficulties and develop appropriate study strategies. (Author/SLD)

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Listening to Students' Voices:

What University Students Tell Us About How They Learn

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ABSTRACT

The strategic learning of college and university students begins with their acquisition of knowledge about their academic context and its learning opportunities and demands. However, traditional assessment measures isolate the student outside of the authentic learning context which limits the information available from these tests. In contrast, this study explores and describes the insights that university students can contribute to an assessment of their study problems and strategies within the authentic context of the Assessment Interview Process (AIP). Utilizing a problem-solving perspective to analyze the students' retrospective verbal reports, this ethnographic study organizes the students' insights regarding the development of strategies to solve study problems into the Strategic Learning Model (SLM). The dimensions of this heuristic, described in this study, provide the structure needed to better understand the processes used by students as they encounter study and learning difficulties and develop appropriate study strategies.

Listening to Students' Voices:

What University Students Tell Us About How They Learn

While they study the content of a variety of courses, college students also acquire knowledge of their academic context, including its challenges and expectations. As they solve calculus problems, memorize classifications for a biology midterm, or analyze the poetry of Walt Whitman, university students encounter study difficulties and develop strategies to solve them. Moreover, they gain information about themselves as learners. As they navigate the assignments and tasks outlined in their syllabi, students develop strategies of academic literacy in order to access meaning and knowledge within this social and academic context. These strategies enable the students to overcome problems that can be disruptive to the learning process; they also can bring the satisfaction that is derived from gaining control over the learning situation. Study strategies empower students to continue in the "ongoing, cyclical process" of developing knowledge in which "each level of discovery is a platform from which to launch new explorations" (Pugh and Pawan, 1991, p. 1).

At times, however, college students do not choose the appropriate strategies with which to achieve academic success or personal satisfaction. They may lack the specific knowledge of the strategy, fail to transfer a previously learned routine, or may have overworked a negative routine into a bad habit (Garner, 1988). When this occurs, learning becomes uncomfortable or is completely disrupted. Previous studies have demonstrated that college students are not well informed about the repertoire of available strategic study skills (Brown, A., 1982; Brown, Campione, and Day, 1981; Dansereau, D.F. et al., 1975). Yet, college students need to control a variety of these study strategies to capably manage their learning; without them, academic goals may become unattainable.

While courses designed to teach a variety of study skills attempt to provide students with the necessary strategies, they often isolate these skills and present them as unchanging

methods that can be practiced in textbooks. The important link is not explicitly made between the skills and the authentic learning activities demanded by the university setting. Authentic assessment and teaching would "involve students in the actual challenges, standards, and habits needed for succes in the academic disciplines or in the workplace" (Wiggins, 1989, p. 706). Students need more than a study skills bag-of-tricks, often derived from disjointed exercises or transferred from dissimilar learning situations. The development of appropriate study strategies must begin with the students developing an awareness of the demands and variability of their learning contexts. Then, they must develop the flexibility and versatility to choose the most appropriate methods of accomplishing their academic tasks.

Strategic learning begins with the students' acquisition of knowledge about their world and its learning opportunities and demands. Students needs to know, moreover, about their own thinking, problem-solving, and study processes. Therefore, an assessment method that gleans these insights from the students can provide information from which to develop strategic learning methods appropriate for these students studying within the authentic university context.

Purpose of this study

The purpose of this study (Cohen, 1992) was to discover the insights that university students can contribute to an assessment of their study problems and strategies through the use of an unstructured Assessment Interview Process (AIP). The AIP is the assessment procedure used at the University Reading/Study Improvement Service at the University of Pennsylvania to determine students' study needs and strategies. This process utilizes the students' retrospective verbal reports. The interviewer/tutor and the student participate in a dialogue and become partners in the assessment which occurs primarily during a student's first visit, but which continues into subsequent sessions. This is a process in which assessment and teaching are closely intertwined. It is also a process which listens to the students' voices, rather than silencing them as traditional assessment measures do.

While all aspects of traditional, standardized testing, including the tests and students, are removed from the reality of the academic context, the AIP, as a dynamic form of assessment, incorporates the social and personal aspects that realistically affect the learning situation. During standardized testing, each examinee is alone with his/her own copy of the test. There is little, if any, human interaction. The student proceeds until the allotted time is expired and hands in the results which will be evaluated in product form, no one having noted the process that was utilized in the task. All aspects of traditional testing, including the texts and students, are removed from the reality of the academic context as these tests claim to be "an independent arbiter of knowledge or ability...unaffected by social interests or political preferences" (Hill and Parry, n.d., p. 11). In contrast, the dialogue of the AIP encourages an evaluation of the authentic learning situation and reflection on the processes used in studying.

Studying is a complex process to investigate. It "resists careful examination and measurement" because it is "private," most often engaged in alone. This "self-directed, self-managed" activity is also variable, according to the student's task (Thomas and Rohwer, 1986, p. 9) and individual differences in the study methods of students (McKeachie, 1988). These attributes also make studying a challenging process to examine. Reynolds and Shirley (1988) feel that "traditional approaches to investigating study skills have not been totally successful" (p. 77).

As difficult as this topic is to investigate, it has been receiving increased research attention (Thomas and Rohwer, 1986; Weinstein et al., 1988). This interest in learning strategies is due to the "long-standing premise that our schools should help students learn to successfully control their cognitive processes, including learning to learn, to remember, and to think" (Mayer, 1988, p. 11).

Along with this interest in learning skills is a challenge to traditional assessment methods. The report of the Commission on Reading (1984) found that instructors do not find the information provided by standardized tests very useful (p. 95). Winograd, Paris,

and Bridge (1991) state that "improving assessment is arguably the most difficult task facing those interested in educational reform" (p. 108). If it is believed that study skills instruction can empower the student within the academic setting, then it follows that assessment cannot isolate study skills outside the authentic context.

Methodology

The AIP presents an assessment alternative for examining the learning strategies of college students and answers many of the current concerns about both assessment and the isolation of study skills. As a personal process, the AIP includes the individual students in their world, problems, and opportunities in a holistic and empowering manner. As an ongoing process, it examines the student's adaptation to variable study contexts with ever-changing demands. It must be stressed that the AIP is not a process that was devised only for purposes of this study, but the one normally used in the setting of this study. Furthermore, the observations were not conducted to test an hypothesis about the interview process itself but, rather, the AIP provided the context from which to discover the insights of college students concerning their study problems and strategies.

In this ethnographic study, observations and audio tapes were made of the interview/tutoring sessions, which included nine students and five interviewer/tutors for a total of 20 sessions. Individual students in this study received between one and four sessions of tutoring. These students were chosen from those who normally make appointments for instruction and bring a variety of needs and concerns with them when they seek assistance. In order to analyze the interviews, the audio tapes were fully transcribed and these transcriptions, with the field notes, were carefully studied. This ethnographic approach was chosen because it supports the exploration and description of a process. As previously noted, mental processes, including learning and comprehension processes, are a complex and intangible subject for study. An exploratory and descriptive approach promised the fullest account of the learning concerns and insights of this group of students.

Data analysis

Data analysis began with the transcription of the interviews. As they were transcribed, reflection focused on recurring topics in the interview. As the transcribed interviews and observation notes were re-read, patterns or "themes" (Spradley, 1979) began to emerge from the data. These themes focused primarily on the students' insights about their learning contexts and the problems and challenges the academic context presented to them. Finally, theories were sought for explanations that would link these patterns to "more durable social structures which shape and are shaped by these events" (Fairclough, 1989, p. 27). In this study, the theoretical perspectives brought clarity to the emergent themes, including one that focused on recognizing and solving study difficulties through learning strategies. Thus, the findings of this study are the result of moving between the analysis of the dialogues and the application of theory to the data.

A combination of problem-solving theories provided a useful perspective with which to view and understand the data. Although problem solving is often associated with mathematical calculation and the need to arrive at the correct numerical answer, many theorists from a variety of fields of study have investigated problem solving, providing descriptions of the process or directions for its use (Baron, 1981; Bransford and Stein, 1981; Flavell, 1976; Hayes, 1981; Polya, 1945; Sternberg, 1981). Investigating college-level studying from a problem solving perspective placed primary importance on the students' attempts to overcome study problems through active involvement directed toward a goal; this was consistent with the data of this study. By utilizing the perspective of problem solving theory to view studying, it was possible to focus on the processes that students use to overcome obstacles to their learning and attain their academic goals.

The Strategic Learning Model

The insights provided by the students regarding the development of strategies to solve study problems were organized through the Strategic Learning Model (SLM) which combines elements of the various problem-solving models into a heuristic that categorizes

and describes the development of study strategies used by college students. The categories of this model consist of six dimensions that were derived from theory and confirmed by the actual dialogue of the the Assessment Interview Process. They are: A) identifying or recognizing the problem, B) representing the problem, C) exploring alternative approaches and considering options, D) choosing a method and acting, E) monitoring the method and its results, and F) revising and internalizing the method. These dimensions provide the structure needed to understand and describe the learning strategies being utilized by students in learning situations.

However, a difficulty with isolating each of these as a heuristic device in order to organize and describe the data is that, in reality, they are neither linear nor are they of equivalent weight as the list might imply. Therefore, the activities within the problem-solving process are labeled "dimensions" rather than "stages," which is commonly used in the problem-solving literature. "Dimension" more adequately describes both the recursiveness and range of the activities within the problem-solving process and connotes a sense of exploration of an idea.

The following descriptions define the dimensions of the SLM. Examples from the data demonstrate the characteristics of the dialogue that indicate a particular dimension of the model.

Dimension A: Identifying the Problem

The problem-solving process emerges from a state of doubt or confusion and the recognition that a difficulty exists. This recognition initiates reflective thinking, which is an important ingredient in the search for a resolution to the problem (Baron, 1981; Dewey, 1910).

For some students, such as Alan, the expression of the problem appears to be discomfort with some aspect of their academic environment, a vaguely articulated feeling without definition.

(1) INTERVIEWER: [after giving Alan several chances to open the conversation]: So
(2) tell me what's going on this semester? What brought, what drove you to come here?

(3) ALAN: [a second semester freshman]: My grade point [average].

(4) INTERVIEWER: Um-um. What about it?

(5) ALAN: Well, it's terrible.

(6) INTERVIEWER: Are you in trouble?

(7) ALAN: Yeah, I think so. I would say so. Sometime, instead of, well, I certainly
(8) don't know what's going to happen next.

Another student, Theresa, states, "You know, that's the major *problem* I have. However, the word "problem" does not have to be used. Marlene, a nursing student, explains, "I'm having *trouble* with that [chemistry course] and that's all memorization." "Issue" and "concern" are examples of other words that are frequently used in this dimension. Moreover, at times this dimension is not indicated by a specific word, but by a feeling of a difficulty.

Dimension B: Representing the Problem

In this dimension, the student describes and explains the problem. It is an attempt to embellish the statement of a problem, often to explain its existence. The students' knowledge of their contexts, task, texts, and themselves is evident here. This dimension helps to orient the interviewer/tutor to the student's particular situation.

Theresa first states the problem in general terms: "I'm on probation actually." She immediately defines the problem, entering dimension B, as she explains her probationary status.

(1) THERESA: ...And I had physics, calculus, and chemistry together, so I ended up not,
(2) not doing any of them. And it was a mistake to take all those science and math courses
(3) together at the same time. It showed up and my results were pretty bad.

In another interview, the first utterance of Nadine, a graduate student in English, identifies her difficulties (Dimension A) as lack of concentration and time management. The interviewer/tutor pursues her concern with time management.

(1) INTERVIEWER: Okay. You said time management is one of your concern?

(2) NADINE: Huh-uh.

(3) INTERVIEWER: Can you describe what led you to that conclusion?

(4) NADINE: Um, I have a lot, I guess mostly not being prepared all the time for my
(5) classes.

Nadine continues to describe her learning context and process and provides and clearer definition of her situation (Dimension B).

(1) NADINE: So, I just have a lot of reading and it gets very tedious. Some of the
(2) readings I don't like and some of the the reading I like, so when I'm not prepared it's
(3) usually because I haven't been doing the reading that I don't like. And I need to, I feel
(4) I need some sort of structure so that I can get a least a little bit done each day and I find
(5) that I'm not doing that. I leave a lot to the last minute and, um, so I guarantee that I'm
(6) not going to get that, that all done, but that, that way.

Dimension C: Exploring alternative Approaches and Considering Options

The exploration of strategies is the core of both the problem-solving process and the Strategic Learning Model. The students provide a description of their productive and non-productive approaches to learning.

(1) NADINE: I sit down. I will, um, try to get everything I want so I can sit down. So
(2) I'll drink a cup of tea. I'll get a glass of water, um, which is generally what I drink.
(3) Um, I'll turn my answering machine on, an, um, I'll start reading. And my mind
(4) will start to wander and I'll come back and I'll have to read. If I'm reading a novel,
(5) I'll have to read the last page. If I'm reading poetry, I'll have to read the last verse.

In this dimension, evidence of instruction is also indicated as the interviewer/tutor suggests additional strategies:

(1) INTERVIEWER: Okay. Let's try something with the poetry. Um, when you're
(2) reading and you find your mind wandering, and you feel that you should stop, stop
(3) and write. Write about what you think you understand about what you've read. Don't
(4) worry about if it's the right response you're supposed to have. Write it, and if you
(5) need to go back and re-read, do that.

Dimension D: Choosing a Method and Acting

After the students have had time to choose a strategy and use it, their verbal thoughts reveal their experience with it. While Dimension C explores possible study approaches by both the student and interviewer/tutor, Dimension D reveals the choosing and acting on that approach. The student, alone, is involved in the implementation of the strategy.

Irma, a sophomore, confidently describes a study strategy that she will use to study for a major exam that involves reviewing material from five texts and many journal articles. She realizes that she will be unable to thoroughly and consistently study all the material, so she has developed the metacognitive strategy of monitoring the content of the texts for relevance and importance.

(1) INTERVIEWER: Okay, it's [the exam] going to be from all of those five [books] and
(2) the journal articles?

(3) IRMA: Yeah, at least parts of the five. I mean some of the stuff I can tell, I mean,
(4) some of the reading, I mean, I'll do, but I won't really consider that much because it
(5) doesn't have that much factual information. It's more of opinions, so, I don't think, I
(6) mean I'll just like skim over the readings again and I don't think I should have too
(7) much trouble [on the exam].

Dimension E: Monitoring the Method and Its Results

This dimension is instrumental in assuring the continued, meaningful use of the strategy and the developing independence of the student. The descriptions of this portion of the problem-solving process stress the cognitive and metacognitive involvement necessary. These descriptions include "Checking the results of the strategy" (Derry and Murphy, 1986), "Considering the insights about learning" (Flavell, 1979), "Looking back and checking the results" (Polya, 1945), and "Looking at the effects" (Bransford and Stein, 1981).

Derek, an engineering major, is discussing his method for studying the notes that he takes in an economics lecture class.

(1) DEREK: Um, let's see...Specifically, I usually return to my notes, not so much that
(2) particular day. Um, I always study my notes, well, not before, at least the next day.

(3) Sometimes I wonder if it would be better if I studied exactly after class or whatever,
(4) while the questions are still fresh in my mind. But I usually let them sit a bit, just
(5) go back and read the questions later.

Derek is aware that he lets the notes "sit" for a while before he reads them, but it is apparent that he is monitoring their usefulness and would be willing to seek an alternative, more rewarding strategy if his method did not yield the desired results.

Dimension F: Revising and Internalizing the Method

During the final dimension of the SLM, students engage in two distinct but related processes, revising and internalizing the strategy. After monitoring the strategy and its results in Dimension E, students have several options. They may completely abandon the strategy and, once again, explore alternate approaches (Dimension C). However, if the strategy seems promising but imperfect, they may choose to refine it, with the revisions emerging from themselves or an external resource such as the interviewer/tutor.

(1) INTERVIEWER: And then I'll give you another argument for working in shorter
(2) chunks. Just try it like fifteen minutes at a time and then go off and, you know, um
(3) look at something else and come back and do fifteen minutes or, you know, um...It's
(4) hard to say whether sticking to it for a longer period, once you get started, is better or
(5) whether doing it, breaking it up is better. Some say it's harder to get back to it. But it
(6) might work better for you.

(7) TOM: Well there are a couple of good things I can try and so...

When students are satisfied with the results and accept the strategy, they internalize it for future use. With internalization comes automaticity and "mastery" (Wertsch, 1991, p. 86) which constitutes the "final stage of strategy use, metacognitive awareness, use and monitoring" (Borkowski et al., 1987, p. 69). When students reflect on their processes, they are able to internalize them for use in future, similar situations. At this point, students are able to apply the study strategy when faced with a new study dilemma. In the dialogues of this study, internalization was most often implied by the students' repeated and appropriate use of a strategy and expressions of self-confidence in its use.

Derek is explaining the method he will use to answer questions on his economics midterm.

(1) INTERVIEWER: They'll give you a hypothetical [situation] and you have to
(2) somehow connect that hypothetical with what you already know?

(3) DEREK: Yes.

(4) INTERVIEWER: And that's how you get your answer. What do you do? Do you
(5) just start writing?

(6) DEREK: Um, in Econ. 1 I did. Today, what I'll do is usually I draw a graph.
(7) When I first get the exam,the first thing I draw is output, well, output and demands
(8) and supply. Basically, just something that I know that's definite, that I can always
(9) refer back to, look at, and from there I can just move forward.

Conclusion

The Strategic Learning Model is a heuristic that clarifies and organizes information that college students can provide concerning their needs and resources within a complicated literacy context. This academic context makes static, product-oriented tests incongruent with the changing needs of college students and encourages the use of a student-centered, dynamic assessment method. Verbal reports are particularly valuable because they "provide a glimpse at 'covert' strategic activity that is not accessible except as described by strategy users" (Reynolds and Shirley, 1988, p. 63). Important assessment information exists in the verbalizations of college students.

After years of rejecting "unobservables" in favor of the security of numerical test scores, there is a "relegitimizing of talk about what goes on in students' heads" (Floden, 1981, p. 105). By listening to the students' voices, it is possible to gain valuable assessment information, help the students untangle the complicated web of studying, and guide the development of appropriate learning strategies.

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